

WHAT IS CLAIMED IS:

1. A wire bonding capillary containing a liquid.
2. A printing system comprising a printing device comprising a wire bonding capillary
5 containing a liquid, wherein the liquid comprises a predetermined agent and the capillary
comprises an axial bore having proximal and distal openings and a printing tip comprising the
distal opening and which prints the agent.
3. A printing system according to claim 2, wherein the liquid is aqueous.
- 10 4. A printing system according to claim 2, wherein the liquid comprises an organic polar
solvent.
5. A printing system according to claim 2, wherein the liquid comprises a nonpolar
15 solvent.
6. A printing system according to claim 2, wherein the agent is a polypeptide.
7. A printing system according to claim 2, wherein the agent is a polynucleotide.
- 20 8. A printing system according to claim 2, wherein the agent is a polynucleotide at least
50 nucleotides in length.
9. A printing system according to claim 2, wherein the bore tapers toward the distal
25 opening of the tip.
10. A printing system according to claim 2, wherein the capillary comprises a ceramic
material.
- 30 11. A printing system according to claim 2, wherein the proximal and distal openings are
open to ambient pressure and the system prints by decelerating the capillary to move the agent

through the bore, out the tip and onto the substrate.

12. A printing system according to claim 2 wherein said capillary is one of a ganged plurality of wire bonding capillaries, each containing a different predetermined agent and each comprising an axial bore having proximal and distal openings and a printing tip comprising the distal opening and which prints the agent.

13. A printing system according to claim 2 wherein said capillary is one of a ganged plurality of wire bonding capillaries, each containing a different predetermined agent and each comprising an axial bore having proximal and distal openings and a printing tip comprising the distal opening and which prints the agent, wherein the ganged plurality comprises a rigid or elastomeric band or clamp to gang together the capillaries.

14. A printing system according to claim 2 wherein said capillary is one of a ganged plurality of wire bonding capillaries, each containing a different predetermined agent and each comprising an axial bore having proximal and distal openings and a printing tip comprising the distal opening and which prints the agent, wherein the ganged plurality comprises a block having receptacles for and which laterally constrain each of the capillaries.

15. A printing system according to claim 2, further comprising a substrate on which the device prints the agent, the substrate selected from the group consisting of glass, ceramic, plastic, metal, silicon, acetate and cellulose.

16. A printing system according to claim 2, further comprising a substrate on which the device prints the agent, the substrate providing a homogeneous surface.

17. A printing system according to claim 2, further comprising a substrate on which the device prints the agent, the substrate providing a surface offering differential surface chemistry or topography.

18. A printing system according to claim 2, further comprising a substrate on which the

device prints the agent, the substrate providing a surface offering differential surface chemistry or topography, which provide predetermined printing sites adapted to receiving, binding, reacting, containing or retaining the agent or liquid.

5 19. A printing system according to claim 2, wherein the printing device further comprises a non-capillary chamber also containing the liquid and having a relatively larger internal diameter than and in fluid connection with the capillary.

20. A printing system according to claim 2, wherein the printing device is detachable and
10 the system further comprises a pod, a substrate and a positioner, wherein:

the pod comprises a receptacle for reversibly attaching an attachment portion of the printing device;

the positioner moves the pod relative to the substrate; and

the printing device prints the agent on the substrate.

15

21. A printing system according to claim 20 further comprising a motion resistor operatively joined to the capillary and providing an incomplete resistance to motion of the capillary along its longitudinal axis, biasing said motion toward the substrate, wherein the resistor is selected from a plurality of springs, an elastomeric membrane and the weight of the
20 capillary.

20

22. A printing system according to claim 20 further comprising a motion resistor operatively joined to the capillary and providing an incomplete resistance to motion of the capillary along its longitudinal axis, biasing said motion toward the substrate, wherein the
25 resistor is the weight of the capillary.

25

23. A printing system according to claim 20 further comprising a register comprising a guide which contacts a registration portion of the printing device, distal to the attachment portion, and moves the tip relative to the substrate.

30

24 A printing system according to claim 11, further comprising a preservation device

within, containing or in contact with the printing device, which preserves the capability of the printing device to print the agent on the substrate over long-term storage of the printing device, wherein the preservation device comprises a deterrent to evaporation of the liquid, wherein the deterrent is selected from the group consisting of a hermetic barrier, a

5 refrigerator, a humidifier and a hygroscopic agent,

25. A printing system according to claim 11, further comprising a preservation device within, containing or in contact with the printing device, which preserves the capability of the printing device to print the agent on the substrate over long-term storage of the printing
10 device, wherein the preservation device comprises a deterrent to evaporation of the liquid, wherein the deterrent is a hermetic barrier.

26. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 2.

15

27. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 8.

28. A method for printing an agent on a substrate comprising the step of printing an agent
20 with the printing system of claim 11.

29. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 12.

25 30. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 18.

31. A method for printing an agent on a substrate comprising the step of printing an agent with the printing system of claim 20.